

**REMARKS**

Claims 1-12 are pending.

**Amendments:**

Claim 1 is amended to specify that a forward path of a coolant channel is formed by a thermal insulation pipe.

Editorial amendments are made to claims 5 and 6.

New claim 7 is added. Claim 7 is similar to original claim 1, but specifies that a forward path of a coolant channel is formed in a thermal insulation pipe outside of a cable core.

New claims 8-12 are similar to claims 2-6 and depend directly or indirectly from claim 7.

No new matter is added.

**Prior art rejections:**

Claims 1, 3 and 5 were rejected under 35 USC §102(b) as being anticipated by Kataoka (U.S. 3,800,062). Claims 2, 4 and 6 were rejected under 35 USC §103(a) as being obvious over Kataoka in view of Bogner.

Reconsideration of the rejections is requested.

Claim 1 specifies a superconducting cable that comprises a cable core, a thermal insulation pipe, and a coolant return pipe. The thermal insulation pipe accommodates the cable core and forms a forward path of a coolant channel. The coolant return pipe is disposed beside the cable core in the thermal insulation pipe. An example of this structure is shown in Figure 1 of the application, in which layers 11-14 comprise the thermal insulation pipe, cable 2 is the cable core, pipe 3 is the coolant return pipe, and the space within inner wall 11 is the forward path of the coolant channel.

Kataoka's structure differs from claim 1. As shown in Figure 2, a hollow conductor 2 is provided within a pipe 5. As shown in Figure 3 and described at col. 3, lines 47-60, coolant is forced under pressure within the pipe 5, causing it to pass through inlets 11 in the hollow conductors 2 and to flow through ducts 3 within the hollow conductors 2. As shown by the arrows in Figure 3, the direction of flow within the pipe 5 and the flow within the ducts 3 of the hollow conductors 2 is the same direction. Coolant leaves the hollow conductors 2 through collecting pipes 9 that carry the coolant to a return pipe 6.

The rejection equates Kataoka's ducts 3 with the forward path of the coolant channel specified by claim 1, and equates Kataoka's enveloping pipe 5 with the coolant return pipe specified by claim 1. Claim 1 has been amended to clarify that the forward path of the coolant channel is formed by the thermal insulation pipe. The duct 3 of Kataoka is not formed by the enveloping pipe 5 that the rejection equates with the thermal insulation pipe of claim 1. Further, the rejection equates the inside of Kataoka's pipe 5 with the backward path specified by claim 1. In view of the clarification of claim 1, this assertion cannot hold. Therefore claim 1 is distinguished from Kataoka, as are all of its dependent claims. While claims 2, 4 and 6 were rejected as obvious over Kataoka in view of Bonger, the teaching of Bonger does not make the features of claim 1 or its dependent claims obvious in view of the differences pointed out with respect to Kataoka. Therefore all claims are allowable over the cited references.

New claim 7 is similar to claim 1 but specifies that a forward path of a coolant channel is formed in a thermal insulation pipe outside of a cable core, and that a coolant return pipe is disposed beside the cable core in the thermal insulation pipe. Kataoka does not show two separate coolant channels within a thermal insulation pipe and outside of a cable core, nor does Bonger teach such a structure. Therefore claim 7 and its dependent claims are also allowable over the cited references.

The foregoing amendments and remarks address all bases for objection and rejection and are believed to place the case in condition for allowance. The examiner is invited to contact the undersigned to resolve any remaining issues.

Respectfully submitted,

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